

## Patent claims

1. Transmission system having:

- a signal source which has an internal resistance;
- a signal transmission line (102), one end of which is connected to the signal source; and
- a terminating resistance which is connected to another end of the signal transmission line (102),

the internal resistance of the signal source and the terminating resistance being complex and being chosen such that frequency-dependent signal attenuation in the transmission system is reduced in a frequency range which contains the frequencies of signals which are produced by the signal source.

2. Transmission system according to claim 1,

characterized

in that the frequencies of the signals produced by the signal source are in a lower frequency range.

3. Transmission system according to claim 1 or 2,

characterized

in that the internal resistance of the signal source and the terminating resistance have a complex resistance (114, 116; 114, 118, 120) which comprises a series circuit comprising a real resistance (114) and an inductance (116) or comprises a series circuit comprising a real resistance (114) and a parallel circuit comprising an inductance (120) and a capacitance (118).

35 4. Transmission system according to claim 1, 2 or 3,

characterized

in that the internal resistance of the signal source and the terminating resistance are chosen

independently of the transmission bandwidth of the signal transmission line (102) and/or the symbol rate of the transmitted signals.

5 5. Transmission system according to one of the preceding claims,  
characterized

in that the signal transmission line (102) has a great length and/or high signal attenuation.

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6. Transmission system according to one of the preceding claims,  
characterized

15 in that the internal resistance of the signal source and the terminating resistance can be set in the transmission system on the basis of the frequencies and/or the symbol rate of the transmitted signals.

20 7. Transmission system according to one of the preceding claims,  
characterized

25 in that the transmission system also has transformers (104, 106) which couple the signal source and the terminating resistance to the signal transmission line (102).

8. Transmission system according to one of claims 2 to 7,

30 characterized  
in that the transmission system is an ISDN transmission system, and the lower frequency range contains frequencies of below 40 kHz.

35 9. Transmission system according to one of the preceding claims,  
characterized

in that the transmission system is an ISDN transmission system, and the real resistance has a value of  $135 \Omega$  and the inductance has a value of  $2.7 \text{ mH}$ .

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10. Transmission system according to one of the preceding claims,

characterized

10. signal transmission line which has a length of between 6 and 7 km.